

Managing and measuring the intangibles to tangibles value flows and conversion process: Romanian Space Agency case study

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Summary

Purpose – *Converting knowledge or competency into long-term business value is, in practice, a far more difficult process than in theory. While developing and implementing knowledge or competence management solutions, companies experience difficulties in measuring the contribution of their intangibles to business results and, what is more critical, companies fail in their efforts to reproduce the conditions and the processes that have unlocked the value creation potential of their intangibles. Building and maintaining large skills inventories, designing complex intranets, keeping large terabytes of knowledge or implementing performing document-management systems and other technology solutions, do not necessarily lead to an improved cash flow stream. It simply brings inefficiency and leads to limited value creation as most of these solutions fail to identify the value-creation patterns or prove the link with organizational performance. What value-contributions bring these terabytes of information to the production process, or to the sales process or to a cash flow stream? This paper seeks to address this issue.*

Design/methodology/approach – *The paper uses a case study to describe an approach and a methodology to identify and record the value flows (value-adding sequences) among knowledge, competencies, partnerships and operational systems and processes, and to measure their contributions to the overall corporate value creation process.*

Findings – *The case study findings demonstrate that the use of the described methodology increased the knowledge base, reducing software implementation cycle time and increasing competitive advantage. Building a strong knowledge base has freed up 20 percent of consultant time and reduced the competence development time for new employees.*

Originality/value – *The paper presents and demonstrates a methodology that can help organization build and exploit knowledge bases more quickly.*

Keywords *Intangible assets, Knowledge management, Romania*

Paper type *Case study*

Introduction

The challenge for corporations in the coming years is to identify all the elements of their value creation cycle (their strategically important tangible and intangible resources) and how these must flow, interact and contribute to sustain the organic development of the organization and significantly enhance its value creation capabilities. Without a method and instrument to identify the inter-relationships and the conversion process between intangible values – knowledge, competencies, partnerships – and all the situations and contexts to which they add value, performance measurement systems will not be able to reveal the true performance of a company or reveal the patterns of value creation. Organizations will therefore need mechanisms and tools to measure these value flows. The concepts and methods that we will describe in this paper propose a critical and practical point in designing

and implementing a performance measurement and management system. We will analyze how this methodology was applied for a knowledge-intensive organization – ROSA, describing the pitfalls and challenges that contributed to further improve the solution.

Our solution: the multi-values management approach and methodology

The Multi-Value Management Engine (MVME) concept and methodology proposes a way to manage the conversion process of the different intangible from one value into another and, in the end, into tangibles results. The definitions and concepts related to intangibles and to the management of value creation are far from clear. It is important to agree upon the definitions of the key concepts of our approach and methodology.

Definitions (concepts)

The issues to be clarified include: Why intangible values? Why multi-value management and what does this mean? What and how many types of intangibles values have we identified? What is a value center? How can we group and structure these value centers? What is a value contribution? Why an internal intangibles market and what is the value negotiation mechanism?

Intangible values. The resource-based theory of the firm (Penrose, 1959) is very well grounded in economic literature and reference to “intangible” resources are recorded in different theories and papers. There are a multitude of studies and papers (Marr *et al.*, 2004) analyzing the origin of the concepts and the different perspectives of what we usually label as “intangibles”. While developing our methodology, it was not our intention to introduce new concepts or start new theoretical debates on the terminology used, but to set up a workable methodology to manage these “intangibles” and to measure their contribution to companies performance. We use the concept of “value” together with the term “intangibles”, because we want to highlight the capacity of “intangibles” to contribute to companies performance only if well managed and placed in the right context and at the right time. Value is contextual and time-sensitive, and the basis of our methodology is the idea that different beneficiaries (e.g. a process, a project, an activity) appreciate differently the same value-input (e.g. a knowledge item, a skill), depending on their particular need as well as the context in which they receive this contribution

Why multi-value management and what does this mean? Value creation is a process that gathers contributions from different sources: company internal business processes, including different types of resources (material, financial, competencies, and know-how), market configuration and partnerships environment. The aim of our methodology is to show the link between these intangible values and the tangible results: improved products and services, superior performance of process and activities, and improved cash flow stream. When we discuss “multi-value”, we are trying to catch all value dimensions, both from “tangibles” and “intangibles” perspectives. We deal in our methodology with three main categories of intangibles values, known generically as knowledge, competence and partnerships. We will define these below. Our approach and methodology groups these tangible and intangible values into four types:

1. *knowledge* (explicit knowledge: is a set of practices, rules, models, concepts and every kind of formalized know how issued by the individual, based on their experiences in activities);
2. *competence* (structured knowledge: best practices, learned lesson, procedures, models, etc., that can be distributed during a learning process to a community);
3. *partnerships* (customer relationships, supplier networks, image-building networks and other business relevant partnerships); and
4. *“Tangibles”* – a generic term for the tangible outputs of the company’s processes, activities and projects.

For each of these value types, an appropriate measurement system (measurement units, scale, procedure and conversion rates with other measurement units) is required in order to



be used in the value flows analysis. In our methodology, intangible values such as knowledge and competence are, alternatively, both inputs and outputs of different value-adding sequences of the value-creation process.

Other concepts of our methodology

Value centers. A value center is a virtual group of activities where values are consolidated and developed, with a significant impact on corporate business processes and business results. Each value center has assigned a community of individuals that are responsible for the value centers activities execution. The different value centers generate valuable outputs for different types of beneficiaries – internal processes and projects, education and social partners, business partners, clients, etc. Our approach and methodology groups these outputs into three production types.

Production types (as identified and structured in our methodology):

- *Internal production* – groups all the value centers that generate internal values (e.g. innovation, knowledge and competencies as the basis of a sustainable competitive advantage);
- *External production* – groups all the value centers that generate external values - free (non-monetary) value distribution outside the company; (e.g. PR, conferences, social involvement, etc.); and
- *Sold production* – groups all the value-creation processes that generate the products and services sold today.

Value contribution. A value contribution is a deliberate distribution of the output of a value centers activities, validated by the receiver as a direct contribution to his own value creation process. The outputs of the value centers activities might be of different types – intangible values or tangible values.

Value negotiation. Is the process of establishing the value of a contribution in a quantitative form specific to a previously established measuring system (measuring units, measuring scale and conversion rates). Different beneficiaries appreciate the same value-contribution differently, depending on their particular need as well as the context in which they receive this contribution. For example, explicit knowledge assets (Nonaka and Takeuchi, 1995) like rules, manuals, procedures, best practices or problem-solutions, are outputs of the organizations individuals or communities that are difficult to evaluate out of context. Each time distinctive knowledge is produced by one of the organizations employees or communities (a so-called value-center), this knowledge is not valuable if it is not directed to a point of need (another employee, community or partner – also a value center).

In our methodology, the mechanism of transmitting a contribution from the original value center to the beneficiary value center is analogous to a market transaction, because the value of this contribution is subject to the offer and the demand internal market tendencies, given its usefulness to and impact on the beneficiary value center. Internal markets for intangible values already exist in every company, but are informal and not transparent (Hamel, 2001, Lowell, 2004). Building and actively supporting the framework for these value-contributions negotiation process to take place is a central approach in our methodology for efficiently exploiting intangible values and thus improving performance. Accounting rules may be further applied in order to register these contributions as value transactions for the two value centers involved – the source and the beneficiary. The same value center can play different roles on this internal intangibles market, depending on context and its position as a seller or a beneficiary of a relevant and distinctive knowledge or competency. Each of the business relevant value centers can be analyzed based on these input or output value-contributions. So, when we analyze these “value accounts” we can appreciate how productive each value center is; we can also identify the value flows through the entire organization as well as those with strategic important partners (customer, suppliers and other stakeholders).





Approach and methodology

Our multi-value management methodology has three main phases:

1. value-adding centers and value flow patterns identification and analysis;
2. designing and implementing the internal market for intangibles values; and
3. intangibles value balanced scorecard and performance measurement.

Since 2003, we have used this approach and methodology within several companies to improve intangibles performance and business results. The aim of the following case study on ROSA is not only to demonstrate how this theoretical framework is actually applied but also to list the pitfalls and challenges during implementation and the efforts to continuously improve this method. INTEGRATOR has also used this method, and we will parallel the results of the two implementations to stress the importance of different factors in achieving significant post-implementation results.

Case study description

The Romanian economic environment is characterized by management of intangible assets as strategic economic assets and their value creation potential is thus being limited. Comparing the existing internal potential to the international economic environment and standards, the Romanian economy, like those of some other Eastern European Countries, has serious imbalances and lags regarding intangible values management such as knowledge, competency or partnerships. These lags may be considered risky because of their persistent influence upon the rhythm and quality of economic, scientific and technological development.

In a context of low local budgets, workforce migration and continual increases in the cost of acquiring new technologies, Romanian organizations have started to recognize the impact of better intangibles management upon their performance. Demand for improved knowledge and competence management has been boosted. For the Romanian Space Agency, the INTEGRATOR s Multi-Value Management approach and methodology (Liviu Cotoră, 2003) and the SPIDTM software provided an integrated intangibles management solution that has grown into a real performance management and measurement system. According to Marius-Ioan Piso, ROSA President and CEO, this project helped ROSA “understand how to determine what knowledge needs to be captured, shared and protected, what competencies need to be developed and retained, and what partnerships bring the most valuable contributions to our strategy and key objectives”.

About ROSA (www.rosa.ro) – problems and goals

The Romanian Space Agency (ROSA) is an independent public institution established in 1991 with the mission of promoting and co-ordinating development and national efforts in the field, promoting international co-operation as a Government representative, and establishing research and development synergy between the Romanian Space Program and other national research centers. Significant reduction of the local research and development budgets, as well as serious workforce migration towards public or private research institutes in the EU and USA, have raised significant problems for ROSA in its efforts for accomplishing its mission and strategic objectives. The existing organizational culture also had a negative impact upon the organizations efficiency and effectiveness: huge quantity of information and know-how available only in the heads of its most experienced researchers; poor collaboration and communication among the organizations individuals and communities, communication in projects being heavily dependent on the project managers ability to share information; “re-inventing the wheel” and time-consuming information and knowledge retrieval; no working mechanism for document management; very poor management of experiences and results gained from international-research consortium; and poor competence management.

With the ultimate goal being to participate efficiently in international research projects, ROSA needed a comprehensive intangible values management framework and tool to protect its

competitive knowledge and core competencies while maximizing its contributions and returns from its strategic partnerships. The expectations concerning this intangible values performance improvement initiative were:

- to capture and share the expertise of its more experienced researchers;
- preservation of its knowledge base in the context of experts leaving;
- to stimulate collaboration and contributions among all its partners (individual researchers, research institutes, educational partners, etc.);
- to improve its competence management process; and
- to be better able to manage the company's intangibles resources and monitor their contribution to the achievement of its strategic objectives.

The project

The process of implementing the multi-value management methodology and the SPIDTM software within ROSA involved a series of analyses and designing steps grouped into the three main phases of our implementation approach.

Phase 1 – Value-adding process analysis. This first phase of our project started with a description of the organization and an analysis of its environment, its business processes and systems, its strategies and its business objectives. Translating ROSA main business drivers into intangibles management strategies and objectives was one of the first steps of the project, from which basis the current state of the value-adding process was analyzed and the future pattern was assessed. The purpose of this business analysis phase was to provide information about the value-creation processes within the organization. It was extremely important for management to obtain an insight into what, where and how value is added and the degree to which the value creation process is or can be controlled.

The value centers. The aim was to encourage management to review the entire organization across all its processes, organizational structures and communities, and to split the value creation process into different “segments” (value centers), where the value is created. A list of ROSAs value centers was defined based on the information collected and analyzed in this phase. These value centers were identified and grouped depending on the value-type of their outputs (knowledge, competency, partnership or tangible values) and depending on the beneficiaries of their outputs (internal processes, external market, brand). The list was validated with the company's appointed team of managers. The next stage of analysis began in order to map the interactions among these value centers, interactions that lead to value-creation according with the company strategies and business objectives.

Lesson learned – from hundreds to tens. We started with a large number of value centers as management tends to consider almost all their more significant activities as value centers, being influenced by Porters value chain theory. The result was an almost unusable list of value centers; it was almost impossible to map their influences in a value-conversion process up to a cash flow stream. The list of value centers needs to be continuously updated to be consistent with changes within the organization and periodically revised in order to eliminate the irrelevant ones.

The value flow patterns. The main scope of this project was to create improvement (of processes, services, working methods, competencies, business results) through better management and appreciation of value of the organizations intangible values. Translating ROSAs main business objectives into intangibles management strategies and objectives was one of the first steps of the project, from which basis the current state of the value-adding process was analyzed and the future value-flow patterns were assessed. The purpose of this value flow pattern analysis was to map the interactions between the different previously identified value centers, in accordance with as-is and to-be strategies adopted by the organization (e.g.: attract and increase the existing knowledge base from both internal and external sources, lever the contribution of the internal, existing knowledge base to the competence development process). The influences between different value centers



were identified and/or defined through a step-by-step analysis of each value-centers contributions to all the others.

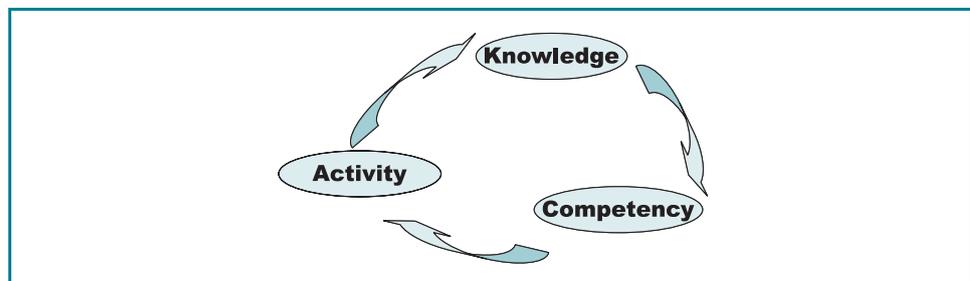
From the competence management perspective, for example, the purpose of this value-flows analysis was to define the core competencies of the organization and to map the role of the knowledge base and partnerships in the competence management process.

Lesson learned – repeatable patterns. This phase involved huge amounts of data collection and analysis. In the beginning, almost anything seemed to have a value-contribution to everything. Again, we started with a large number of direct links among the value centers exiting into the system, which led to difficulties in mapping the different value-creating processes within the organization. Being a knowledge-intensive organization, the ROSA project closely resembled our own company, INTEGRATOR, where we first implemented this methodology. The pattern that we used to map the value-contributions among the different ROSAs value centers was the result of our prior experiences within INTEGRATOR and it is shown in Figure 1:

INTEGRATOR proved to be more determined in building and stimulating its intangibles values market. Also, the author of this intangibles performance management and measurement methodology, INTEGRATOR's managing director, Liviu Cotoră, is entirely committed to making this system work for our company. Also, we also started from almost 250 value centers and reduced to about 50. The strategically important value-contributions are listed as prior objectives of our knowledge-workers and knowledge – communities and usage of Collaboration Platform for submitting value contributions is mandatory for each INTEGRATOR employee. Permanently reviewing the value flow patterns and supporting market rules – the pricing mechanism and the supply and demand forces – in order to make them consistent with company business objectives and business and business environment – helped to diminish the concerns that workload will increase without any visible benefits for users. A reward scheme based on the individuals' or communities' value contributions inside this internal intangibles market was set up. *The result is an environment where value contributions are judged upon their real, contextual value, in terms of relevance and impact upon activities or projects' objectives.*

Phase 2 – The Internal Intangibles Market: stimulating, monitoring and negotiating value contributions. Real-life value contributions are made by individuals during their day-to-day activities. Critical to the success of any ROSA initiative to lever its intangible values performance and contributions business strategy and results was the commitment of its employed or contracted researchers to make this value-flow actually happen. Whether planned, (e.g. a solution to an identified problem, a research report, a project-management manual) or unplanned, (e.g. activity or workplace improvement proposals, a lesson learned), the value contributions coming from ROSAs employees, communities or partners were very difficult to track or exploit for the purpose of improving the company's processes or results. Measurement was out of the question . . . It became clear that besides a collaborative tool, in the form of intranet, email or other IT system, ROSA needed a mechanism to stimulate and reward the value-adding contributions of its researchers and partners and support the conversion of this explicit knowledge into new/improved competencies through

Figure 1 A value flow pattern from knowledge capture to productivity increase for R&D activities (generic)



methodologies, procedures, manuals and training procedures, to allow the organization to develop a sustainable, evolving value creation environment.

The tool the company used. The best management tools will not help a company that has not articulated its strategy and vision for intangibles management and performance management. However, instruments and tools are required to support the organizations many strategies and sustain the collaboration throughout the value-adding chain. Critical to the success of this project was the mechanism to track and measure the value contributions and the conversion process between different intangible values – knowledge, competencies, and partnerships – up to a cash flow stream. An integral part of the collaboration platform implemented was this mechanism of value – negotiations between the source and beneficiary of a value contribution and the accounting mechanism to store the negotiated value in the debit and credit section of a value center, as inputs and outputs of that value center.

Lesson learned – executives commitment. Crucial points for this performance management and measurement initiative are the executives commitment and the employees attitude towards a knowledge sharing environment and an internal intangibles market. In order consider this project successful, besides the theoretical constructions during the analysis phases, the system has to generate enough value contributions coming from company individuals and communities for indicators to return significant performance measures. Within ROSA, submitting a value contribution was left as a voluntary act of the “value source”. Without immediate and visible returns, employees still prove little reluctant to a collaborative, knowledge-sharing environment. One of the main concerns was that workload would increase without any visible benefits for users. We believe that in order for this management system to work and any accomplished results to persist and improve, it requires the executives continuous commitment and involvement.

Phase 3 – ROSAs Intangibles Balanced Scorecard and the Intangibles Performance Management and Measurement framework. Starting from the business requirements, strategies and business objectives of the organization, the mechanism of counting and measuring the value contribution on a value stream has been built in a manner very similar to traditional accounting. For each of ROSAs objectives, a set of measures and key performance indicators was developed in order to determine their contribution to the value creation process within the management framework given by the organizations strategies and business objectives. We applied traditional accounting to measure and count the inputs and outputs of a value center in a value flow up to a cash flow stream. The different indicator formulas were based on these input and output values in a combinatory value framework. In order to capture the conversion process between the different types of values, we used different measurement systems for each value type (competency, knowledge or financials) and conversion rates. Starting from the method developed by INTEGRATOR, the client selected three types of indicators in which each type of intangibles resources was related to the company business objectives:

1. *Dynamics:* The number and frequency of value contributions towards organization processes and projects.
2. *Impact:* Focuses on the qualitative aspects of these value contributions, starting from the values negotiated on the internal market.
3. *Return:* Comparing the outcomes to the costs involved (comparing outputs to inputs for the analysed value centers).

The initial set of measures and threshold values were built and validates with ROSA executive, starting from the company current strategies and business objectives. They are permanently revised by ROSA executives, in order to continuously adjust the measuring system to the company's strategies and business objectives.



Conclusions and results

Different results can be achieved from the implementation of this method, mostly depending on the executives commitment and staff attitude. For various reasons we cannot reveal the results achieved by ROSA but we can give some relevant figures, from the INTEGRATOR experience. INTEGRATOR first used this methodology and tool three years ago, when faced with growing competition in its primary business area: SAP solutions implementation. Throughout the first year, INTEGRATORs knowledge base almost doubled, resulting in a reduction of over 15 percent in cycle time for our SAP implementation projects. This meant a strong competitive advantage, which led to a leading position being maintained on the market. Also, INTEGRATOR achieved a dramatic reduction in offer-building cycle time. Building a strong knowledge base has freed up to 20 percent of SAP consultants time previously spent on pre-sales and offer-building activities. Today, probably the most important result is the significant reduction of the competence development cycle for new employees. Although three years ago it took almost one year before a new consultant could be sent on his first assignment on a project, today new employees take important assignments on projects after a three-month intensive program.

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